Appendix E

Cultural Resources Report

A Class I and Class III Cultural Resource Inventory of the Hess Tioga Gas Plant to Tioga Rail Terminal Gas Pipeline, Williams County, North Dakota

Prepared for

Hess Corporation

Prepared by

SWCA Environmental Consultants

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Consult the township tables in *The North Dakota Comprehensive Plan for Historic Preservation: Archeological Component*, (SHSND 2008; available at http://history.nd.gov/hp/hpforms.html) for Study Unit assignments.
Study Units: LM, CB, KN, HE, SM, GA, JA, GR, NR, SR, SO, SH, YE

COUNTY	TWP	RNG	SEC	SU
Williams	157N	95W	26, 28, 33, 34, 35	GA

A Class I and Class III Cultural Resource Inventory of the Hess Tioga Gas Plant to the Tioga Rail Terminal Gas Pipeline, Williams County, North Dakota

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ABSTRACT

This report outlines the results of a Class I and Class III cultural resource inventory conducted by SWCA Environmental Consultants (SWCA) on May 18, July 1, and September 8, 2011, for a proposed natural gas liquids (NGL) pipeline that will connect the existing Tioga Gas Plant (TGP) to the existing Tioga Rail Terminal (TRT) for the transferring of natural gas, un-odorized propane, and un-odorized butane between these facilities. Hess Corporation (Hess) proposes to construct the TGP to TRT gas pipeline on privately owned lands located in Sections 26, 28, 33, 34, and 35, Township 157 North, Range 95 West. The proposed alignment is located east, south, and southwest of Tioga, North Dakota. The inventoried area is depicted on the Tioga (1979) U.S. Geological Survey topographic quadrangle.

The jurisdictional agency presiding over the construction of the TGP to TRT pipeline is the North Dakota Public Service Commission (NDPSC). In compliance with NDPSC requirements, Hess requested SWCA perform a cultural resource survey to assess the potential effect of activities associated with the construction of a gas pipeline. Part of the proposed alignment falls within areas previously inventoried by SWCA for the Hess TRT (Lechert and Smith 2010) and Hess TGP Southern expansion (Lechert 2011) projects. The current inventory includes 134.80 acres of centerline survey and 37.03 acres of additional reroute survey. The survey corridor width ranges from 300 to 350 feet wide to accommodate pipeline route deviations and/or construction corridors of varying widths. In total, 171.83 acres were inventoried for the project. The proposed pipeline will extend for 3.62 miles and as proposed the construction corridor will fall entirely within the area inventoried by SWCA in 2010 and 2011.

During the inventory, SWCA newly recorded a segment of the historic Great Northern Railway mainline, currently owned and operated by Burlington Northern Santa Fe Railway (32WI1007). Specifically, this segment is part of the Glasgow Subdivision of the Minot-Williston main line and is currently an active railroad. SWCA recommends 32WI1007 eligible for nomination to the National Register of Historic Places under Criterion A; however, the newly recorded segment of 32WI1007 is recommended as a non-contributing portion of the larger resource due to the impacts to its physical and historic integrity. Hess plans to avoid 32WI1007 by boring underneath the site. SWCA recommends that a determination of *No Historic Properties Affected* and *No Significant Sites Affected* be granted for the project to proceed as planned.

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TABLE OF CONTENTS

LIST OF TABLES

TABLE OF CONTENTS (continued)

LIST OF FIGURES

LIST OF APPENDICES

INTRODUCTION

This report outlines the results of a Class I and Class III cultural resource inventory conducted by SWCA Environmental Consultants (SWCA) on May 18, July 1, and September 8, 2011, for a proposed pipeline that will connect the existing Tioga Gas Plant (TGP) to the existing Tioga Rail Terminal (TRT) for the transferring of natural gas, un-odorized propane, and un-odorized butane between these facilities. Hess Corporation (Hess) proposes to construct a 3.62-mile-long pipeline east, south, and southwest of Tioga, North Dakota. The North Dakota Public Service Commission (NDPSC) is the jurisdictional agency presiding over the construction of the TGP to TRT gas pipeline. In compliance with NDPSC requirements, Hess requested SWCA perform a cultural resource survey to assess the potential effect of activities associated with the construction of a gas pipeline.

The TGP to TRT gas pipeline project area is located on privately owned land in Sections 26, 28, 33, 34, and 35, Township (T) 157 North (N), Range (R) 95 West (W) (Figures 1a and 1b). The inventoried area is depicted on the Tioga (1979) U.S. Geological Survey (USGS) topographic quadrangle. The proposed alignment extends for 3.62 miles and portions of it fall within areas previously inventoried by SWCA for the Hess TRT (Lechert and Smith 2010) and Hess TGP Southern expansion (Lechert 2011) projects. The current inventory includes 134.80 acres of centerline survey and 37.03 acres of additional reroute survey. The survey corridor ranges from 300 to 350 feet wide to accommodate pipeline centerline shifts. In total, 171.83 acres were inventoried for the project. As proposed, the pipeline construction corridor would be contained entirely within the land inventoried by SWCA in 2010 and 2011.

For the cultural resource investigation, Judith Cooper and Michael J. Retter served as Principal Investigators. Nicholas Smith, Adam Leroy, and Chandler S. Herson, all of SWCA and permitted archaeologists within the State of North Dakota, completed the fieldwork. All field notes and photographs are on file at SWCA's Bismarck, North Dakota, office under project number 20749.

Contains Privileged Information -- Do Not Release

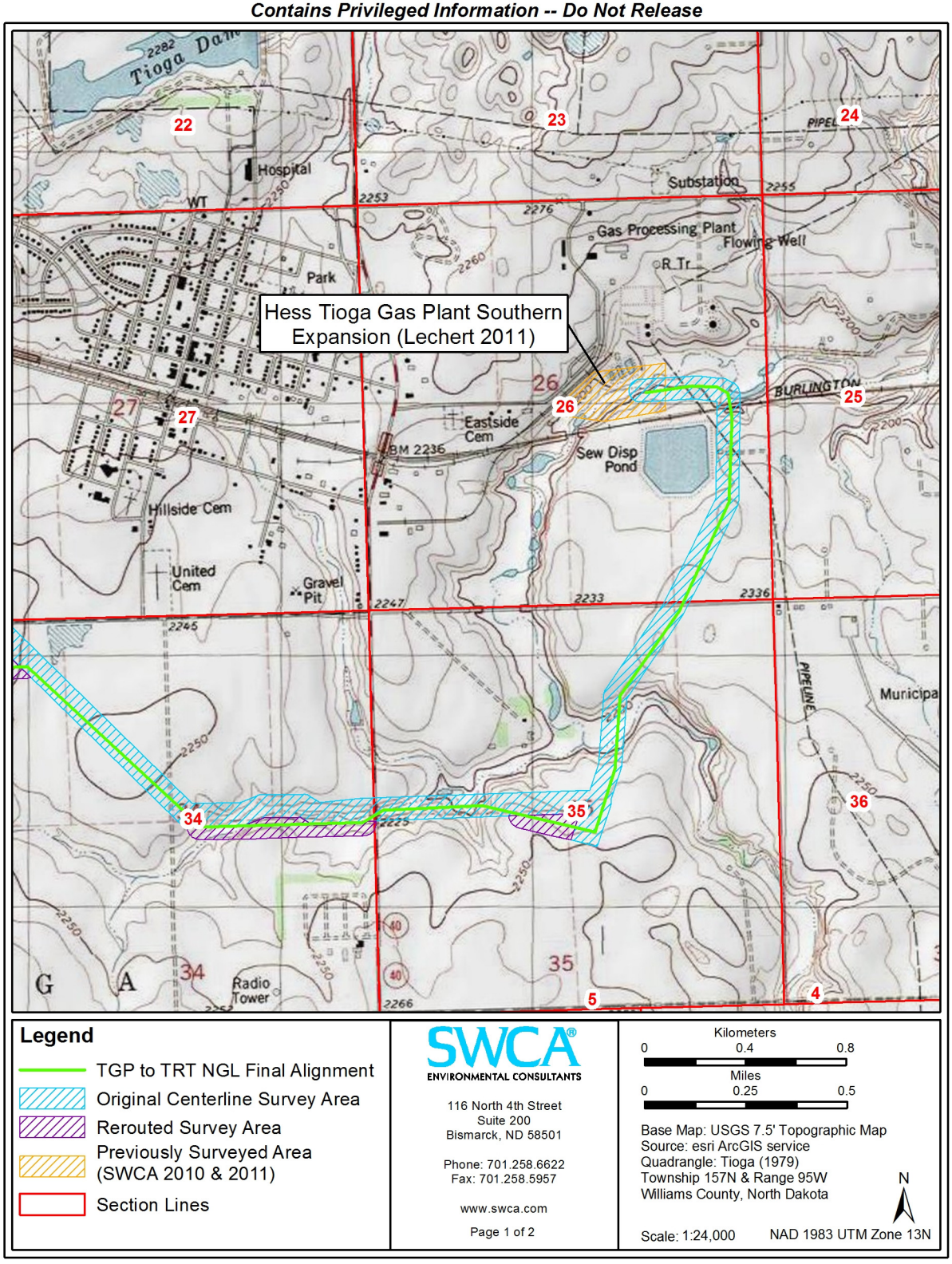

Figure 1a. Project area map.

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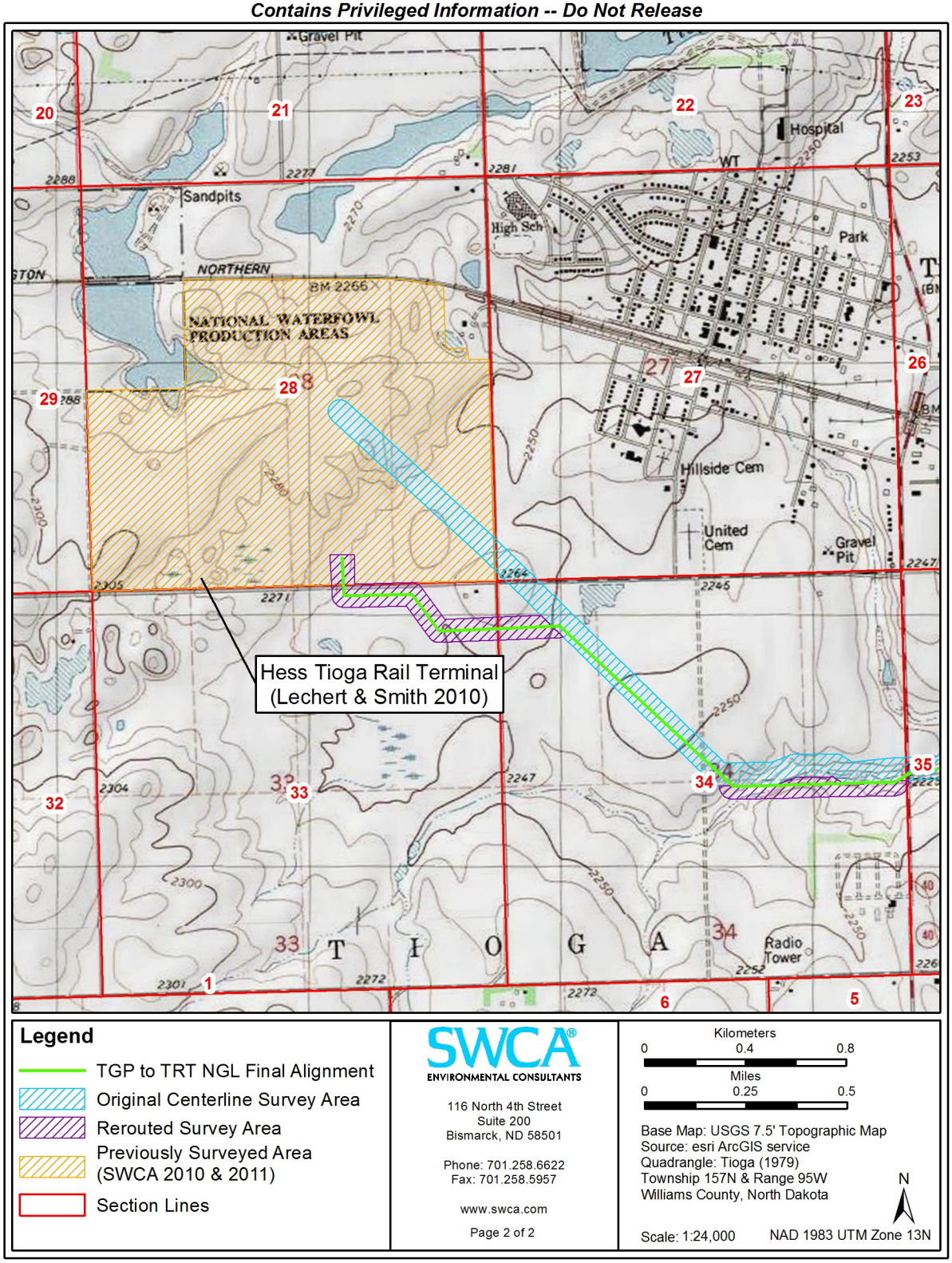

Figure 1b. Project area map.

PROJECT SETTING

TOPOGRAPHY

The project area is located in the Missouri Coteau Slope ecoregion of the Great Plains physiographic province in northwest North Dakota (Fenneman 1931). The Missouri Coteau Slope ecoregion declines in elevation from the Missouri Coteau to the Missouri River, and is characterized by a simple drainage pattern and fewer wetland depressions than the Missouri Coteau (Fenneman 1931). The elevation in the project area ranges from approximately 2,233 to 2,264 feet, with the highest elevations in the northeastern portions of the project area. The general topography of the proposed project area is fairly consistent, with significant surface irregularity and high concentrations of wetlands (Bryce et al. 1998) (Figure 2). Largely affected by glaciation, this ecoregion contains a high content of glacial till soils and a sparse drainage pattern (Bryce et al. 1998).

Figure 2. Project area overview depicting general topography, facing west.

CLIMATE

The climate for northwest North Dakota is temperate. Based on climatic data collected from the Grenora station in northwestern North Dakota between 1971 to 2000, January is the coldest month with a mean daily temperature of 6.9 degrees Fahrenheit (°F) while July is the warmest month with a mean daily temperature of 68.8°F (National Climatic Data Center [NCDC] 2009). Temperature extremes on record range from -43°F at the coldest to 111°F at the warmest. On average, 132 days are frost-free (28°F or above) and the average date of the first fall frost is September 28 and the average date of the last spring frost is May 4 (North Dakota Agricultural Statistics Service 2010). Per annum, Grenora receives 13.56 inches of precipitation (NCDC 2009). The wettest month is June, with an average of 2.40 inches of

precipitation received; February is the driest, with only 0.28 inch of precipitation received on average. Thirty-five inches of snow are received annually, on average, with the highest accumulations (7.5 inches, on average) received in November (NCDC 2009). The highest monthly snowfall on record occurred in January at which time 22.3 inches of snow fell. Overall, northwest North Dakota, like much of the northwestern Great Plains, is characterized by a moderate to cool climate, with cold, dry winters and mild to warm, dry to moderately wet summers.

HYDROLOGY

The southern and eastern portions of the proposed gas pipeline are crossed by a series of unnamed drainages, which are intermittent tributaries to Paulsen Creek, approximately 4.1 miles east of the proposed project area. Paulsen Creek in turn empties into the White Earth River approximately 8.1 miles east of the project. A portion of the project area is parallel to the Tioga city sewage pond and Tioga Dam is approximately 1.29 miles northwest from the project area. Furthermore, a number of small wetlands are in areas adjacent to the proposed pipeline alignment.

GEOLOGY

In general, the geology of the project area is characterized by Glacial Sediment-Collapsed Glacial Sediment (Qccr). Glacial Sediment-Collapsed Glacial Sediment consists of an unbedded, unsorted mixture of clay, silt, sand, and pebbles, with a few cobbles and boulders, and is up to 30 feet thick (Clayton 1980).

SOILS

Five soil series are present in the project area (Natural Resources Conservation Service 2011); however, the dominant soil type is fine-loamy till found on swales, ridges, and floodplains. Table 1 summarizes the soils within the project area.

Table 1. Summary of Soil Series within the Project Area.

Soil Series	Parent Material	Drainage	Slope	Landform
Arnegard loam	Fine-loamy till	Well drained	0–2%	Swales
Appam sandy loam	Sandy and gravelly glaciofluvial deposits	Somewhat excessively drained	0–6%	Rises
Williams-Bowbells loams	Fine-loamy till	Well drained	0–6%	Rises
Zahl-Williams loams	Fine-loamy till	Well drained	15%–60%	Ridges
Korchea-Divide loams	Fine-loamy alluvium	Well drained	0–2%	Floodplains

Source: Natural Resources Conservation Service 2011

FLORA AND FAUNA

The project area is situated within the Missouri Coteau Slope ecoregion, characterized by a simple drainage system and few wetlands (Figure 3). Present vegetation includes such species as blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), needlegrass (*Nassella viridula*), little bluestream (*Schizachyrium scoparium*), and prairie sandreed (*Calamovilfa longifolia*) (Bryce et al. 1998).

Figure 3. Overview of the vegetation characteristic of the project area, facing east.

Approximately 160 wildlife species are resident or seasonal visitors to the Missouri River ecosystem, and hundreds of native fish species live in the mainstem and tributaries. Some of the animal species that would have been common and available for human use in the Missouri River Valley area—both prehistorically and historically—include fur-bearing mammals such as beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), eastern cottontail (*Sylvilagus floridanus*), elk (*Cervus elaphus*), moose (*Alces alces*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), pronghorn (*Antilocapra americana*), and bison (*Bison bison*), as well as bird and waterfowl species such as mallard (*Anas platyrhynchos*), Canada goose (*Branta canadensis*), sharp-tailed grouse (*Pedioecetes phasianellus campestris*), golden eagle (*Aquila chrysaetos*), and bald eagle (*Haliaeetus leucocephalus*) (Seabloom et al. 1978). At present, three federally listed threatened and endangered species reside in the area—the least tern (*Sterna antillarum*), piping plover (*Charadrius melodus*), and pallid sturgeon (*Scaphirhynchus albus*) (U.S. Fish and Wildlife Service 2010).

ENVIRONMENTAL CONSTRAINTS

Preservation of archaeological materials within or adjacent to the project area has been impacted largely by natural erosion, including ongoing eolian and colluvial processes. Secondary sources of impact to archaeological resources include livestock grazing, agriculture, and oil and gas development. Some oil and gas development, including the installation of pipelines, well pads, and associated infrastructure, has occurred near the project area and is presently increasing as demand for domestic energy sources has grown in recent years. Lands within and adjacent to the project area have also been heavily impacted by development, infrastructure, and commerce associated with the nearby town of Tioga, North Dakota; these impacts include roads, housing developments, sewage disposal ponds, transmission lines, gravel pits, rail lines, and railway appurtenances. In some places, these varied land uses have resulted in increased ground visibility and removal of overburden, allowing for the identification of numerous sites and an interpretation of high site density. In other cases, though, it has simply removed the archaeological materials and resulted in the identification of low site densities. In combination, these factors may have disrupted the contexts of a moderate percentage of cultural materials.

CULTURAL/HISTORIC OVERVIEW

PREHISTORIC CONTEXTS

The following discussion incorporates a variety of sources to develop a prehistoric overview for the work conducted for this project and includes information from the Garrison Study Unit (GSU) in which the project area is located (Gregg and Bleier 2008). As of 2007, 3,303 archaeological sites were identified in the GSU, the majority of which were identified on ridges (40.5 percent); hills, bluffs, and knolls (24.0 percent); and terraces (10.4 percent) (Gregg and Bleier 2008).

Paleoindian Tradition (ca. 11,500–7,900 years before present [B.P.])

Although speculation exists regarding the possibility of earlier habitation of the Great Plains, the Paleoindian tradition is the oldest of the region, and, in general, is associated with a hunting and gathering adaptation (Gregg 1985). The Paleoindian tradition is subdivided here into six main complexes: Clovis, Goshen, Folsom, Hell Gap/Agate Basin, Alberta/Cody, and Parallel Oblique Flaked. Fourteen Paleoindian archaeological resources have been identified in the GSU (Gregg and Bleier 2008). Paleoindian sites in the GSU include, but are not limited to, the Beacon Island site (32MN234A), the Beacon Island Agate Basin site (32MN234), the Moe site (32MN101), and 32ME946.

The Clovis complex (ca. 11,500–10,800 B.P.), defined by large, fluted lanceolate projectile points, is the earliest unequivocal complex in North America. Clovis artifacts have been found with megafauna, such as mammoth, in buried contexts in the Southwest and Great Plains (Grayson and Meltzer 2002); however, although megafauna were probably dietary constituents, it is debated to what degree Early Paleoindians pursued large game (Cannon and Meltzer 2004; Grayson and Meltzer 2002). In the South Dakota Badlands, the Lange-Ferguson site yields the best evidence for proboscidean exploitation (Hannus 1990). Here,

modified mammoth bones are directly associated with a flake and three projectile points were recovered from deposits similar to those containing mammoth, indicating that Clovis hunter-gatherers either killed the animals or scavenged their carcasses (Hannus 1990). Skeletal remains from a single mammoth were unearthed during building construction in 1988 near Powers Lake within the GSU. These remains were shallowly buried, were not radiocarbon dated, and were not appraised for the potential of associated cultural remains (Gregg and Bleier 2008). Few Clovis sites have been recorded in the region. Clovis artifacts were recovered from two sites; a single Clovis point base was recovered from 32ME946 (Floodman 1988) and Clovis points have been recovered from the Beacon Island Agate Basin site (Ahler 2003).

Goshen (ca. 10,900–10,100 B.P.) is a technological complex first identified at Hell Gap, Wyoming (Irwin 1967, 1971), but it is also found at Mill Iron, Montana, Carter-Kerr/McGee, Wyoming, and the Jim Pitts site, located in the South Dakota Black Hills (Sellet 2001). Goshen is poorly understood—the basally thinned, unfluted projectile points share affinities with both Clovis and Folsom, but are also similar to Southern Plains Plainview points. In stratified deposits, Goshen materials typically underlie Folsom (Frison et al. 1996). Plainview or Goshen points were recovered from the Moe site in the GSU (Gregg and Bleier 2008).

The Folsom complex (ca. 10,900–10,200 B.P.) is typified by distinctive fluted lanceolate projectile points. With most large grazers extinct by Folsom times and grasslands dominating the Great Plains, bison populations flourished, providing resources for Folsom hunters (Frison 1991). However, many high-elevation Folsom sites, especially in the intermontane basins of the Rocky Mountains, also demonstrate broad diets of diverse small prey (Hill 2007). Probable structures recorded at the Mountaineer and Barger Gulch sites in Colorado suggest long-term occupations in mountain settings (Stiger 2006; Surovell and Waguespack 2007). In North Dakota, there are numerous documented Folsom sites (Gregg 1985), including the Bobtail Wolf (32DU955A), Big Black (32DU955C), and Young-Man-Chief (32DU955D) sites (Root 2000; Shifrin 2000; William 2000). These sites are interpreted as camps, quarries, and lithic workshops where Knife River flint was procured and used for tool production. In the GSU, Folsom points were recovered from the Moe site (32MN101) and Beacon Island Agate Basin site (32MN234) (Gregg and Bleier 2008).

Both the Agate Basin (ca. 10,500–10,000 B.P.) and Hell Gap (ca. 10,000–9,500 B.P.) technocomplexes are typified by lanceolate projectile points with thick lenticular cross-sections (Frison 1991). Based on morphological similarities and stratigraphic evidence, Hell Gap is technologically descended from Agate Basin. Agate Basin and Hell Gap hunter-gatherers were probably specialized bison hunters. Sites like Agate Basin II (Hill 2001) and Casper (Todd et al. 1997) indicate more frequent extraction of marrow and within-bone nutrients, suggesting a greater focus on long-range planning than previously evident. Some sites associated with this tradition have been recorded in North and South Dakota, but these mainly consist of isolated and surface finds (Gregg 1985). One of the most significant Paleoindian sites in the GSU is the Beacon Island Agate Basin site (Ahler 2003). Agate Basin points have also been recovered from the Moe site, and an isolated Knife River flint Agate Basin point was recorded at 32ME946 (Gregg and Bleier 2008).

Alberta (9800–9000 B.P.) is a poorly dated technology that probably descends from Hell Gap and is documented at the Hell Gap, Wyoming, and Hudson-Meng, Nebraska, sites (Agenbroad 1978; Frison 1991). Hudson-Meng is one of the largest documented bison kills and suggests that Alberta people focused on bison hunting (Agenbroad 1978); however, more recent work suggests that humans were not responsible for killing the bison and that they died of a natural event (Todd and Rapson 1999). The Cody Complex (9200–8800 B.P.), which includes stemmed/shouldered Eden and Scottsbluff projectile points and the distinctive Cody knife, apparently arose from Alberta (Frison 1991). These sites are widespread across the northwestern and central Great Plains, with components at the Wyoming Horner I, Finley, and Medicine Lodge Creek sites (Frison and Todd 1986; Frison and Walker 2007) and the Mammoth Meadows, Myers-Hindman, and MacHaffie sites in Montana (Davis 1993). Such sites indicate that Cody adaptations were diverse and utilized large fauna as well as small prey and floral resources (Frison et al. 1996; Galvan 2007). Alberta/Cody sites have been recorded in North and South Dakota. In fact, Hudson-Meng contains extensive Knife River flint, showing a strong connection to the Missouri River region. A single Scottsbluff point was recorded at the Moe site, and Metcalf et al. (1988) recorded a probable Alberta point as an isolated find near Scorio Creek.

The Parallel Oblique Flaked complex is a catch-all grouping of Paleoindian projectile point types (Gregg 1985) including Angostura, Milnesand, Browns Valley, Lusk, Allen, and Frederick; these range in age from around 9400 to 7900 B.P. All types are lanceolate with parallel oblique flaking. Bison kill-butcheries became rare on the northwestern and northern Great Plains after approximately 8000 B.P. (Frison 1998), perhaps due to severe ecological deterioration that could no longer support large bison populations. Complex excavated and surface sites have been recorded in the Dakotas, including sites on the Missouri River. In the GSU, six archaeological resources defined under the general "Plano" category have been identified (Gregg and Bleier 2008).

Plains Archaic Tradition (ca. 8000–1500 B.P.)

The transition from Paleoindian to Archaic is archaeologically visible as an abrupt shift to large notched projectile points (Frison 1991), perhaps indicating a shift to atlatl propelled darts from hand-thrown spears. This transition is also associated with warming/drying trends that prompted diverse subsistence adaptations among hunter-gatherers (Carlson 1994). Ground stone appears in the Archaic, suggesting a greater focus on processing floral resources. In conjunction with the appearance of pit houses and storage pits in the western intermontane basins, this suggests a shift in subsistence base, a reduction in overall residential mobility, and more predictable seasonal rounds (Frison 1991). In the GSU, 96 Archaic archaeological resources have been identified. Thirty-one of these are from unspecified associations (Gregg and Bleier 2008). Important Archaic-age sites in the GSU include the Mondrian Tree site (32MZ58) and the Moe site (32MN101).

The Logan Creek/Mummy Cave complex (5600–4000 B.P.) is the earliest example of large side-notched projectile points on the northern Great Plains. The blending of the Logan Creek and Mummy Cave for this complex is due to varied nomenclature used among archaeologists regionally for similar archaeological complexes (Gregg 1985). Settlement types associated with this complex include bison kills, transient camps, and some stone circle sites. Four

archaeological resources containing large side-notched projectile point varieties have been identified in the GSU (Gregg and Bleier 2008).

The Oxbow complex (5000–4000 B.P.), typified by side-notched, deeply concave-based projectile points, is concentrated in northern Montana, Alberta, and Saskatchewan (Hannus 1994:180) but is also quite common in North and South Dakota, with numerous sites along the Missouri River and its tributary system. Oxbow subsistence apparently centered on bison and sites include bison impoundments and jumps, encampments on stream terraces, stone circles, and processing areas (Hannus 1994; Reeves 1969). However, numerous birds and small mammals were probably exploited (Aaberg et al. 2006:174). Some northern Great Plains sites further yield evidence of complex cultural behavior including bundle burials with elaborate grave goods (Bryan 1991). Four Oxbow archaeological resources have been identified in the GSU (Gregg and Bleier 2008).

The McKean complex (ca. 4500–3400 B.P.) encompasses three distinct sub-phases—the McKean lanceolate, Duncan, and Hannah. The McKean complex is widespread across the Great Plains, and sites from this period can be found associated with bison kills, stone circles, lithic caching, and seasonal settlements (Frison 1991). Slab-lined pit hearths are common, as are ground stone artifacts suggesting a greater reliance on plant resources (Carlson 1994; Frison 1991). McKean complex sites often demonstrate evidence of lithic raw material exchange, including Swan River chert, Tongue River silicified sediment, and Knife River flint (Gregg 1985). In the GSU, 23 archaeological resources dating to the McKean complex have been identified (Gregg and Bleier 2008).

Pelican Lake (ca. 3000–2700 B.P.), typified by broad, thin corner-notched projectile points, is likely a descendant of McKean and is found across the northern and central Great Plains (Frison 1991). This wide spatial distribution may indicate significant population growth in response to the favorable moist conditions of the Sub-Atlantic episode (Reeves 1983). Numerous communal bison kills, such as Head-Smashed-In (Frison 1991), indicate communal bison hunting, but this does not suggest it was an exclusive feature of their subsistence. Rather, Pelican Lake populations probably relied on a broad-based economy across diverse ecozones (Hannus 1994). Thirty-four Pelican Lake archaeological resources have been identified in the GSU (Gregg and Bleier 2008).

Plains Woodland Tradition (ca. 2000–450 B.P.)

Temporally overlapping with the Northwestern Plains Late Archaic, the Plains Woodland tradition is characterized by increased sedentism, garden horticultural activity, expanding regional exchange networks with eastern Woodland populations (Adena and Hopewell), and the elaboration of ceremonial activities and mortuary practices, specifically mound burials (Griffin 1967). Significant technological advances such as bow and arrow and ceramics-use are also apparent (Gregg 1985); however, the fundamental subsistence strategies of the Plains Woodland did not drastically differ from their Archaic predecessors (Zimmerman 1985). It is assumed that this tradition saw the beginning of horticultural practices in the region. For the purposes of this study the complexes that are classed as belonging to the Plains Woodland include Besant, Sonota, Laurel, Avonlea, Old Woman's, and Blackduck. The Besant and Sonota components are well represented in the GSU (Gregg and Bleier 2008). Of the 184

Woodland sites in the GSU, 119 are unspecified, and 37 are Besant and/or Sonota age sites (Gregg and Bleier 2008).

The Besant complex (ca. 2000–1500 B.P.), typified by small to medium-sized side-notched triangular projectile points, represents the earliest presence of ceramics in North Dakota, probably resulting from eastern woodland influence (Walde 2006). Besant ceramics are more common in the eastern half of the Dakotas; the vessels show a basic conoidal shape and suggest lump modeling manufacture with some coarse cording (Wood and Johnson 1973). Besant sites show extensive use of Knife River flint (Reeves 1970). Site types include stone circle sites, habitations on stream and river terraces, and bison kills. Numerous communal kill sites, including the Ruby bison pound in Wyoming (Frison 1991), suggest that Besant people were sophisticated bison hunters. The Sonota complex (1850–1350 B.P.) appears to be a possible sub-complex of Besant, but differs in that burial mounds are common at Sonota sites (Reeves 1983; Wood 1967). These mounds include rectangular subfloor pits/tombs with dismembered bodies and, commonly, articulated bison remains (Johnson and Johnson 1998). The presence of associated exotic artifacts is often cited as evidence of Hopewell influence on Middle Plains Woodland populations (Johnson and Johnson 1998). In the GSU, 37 Besant/Sonota archaeological resources have been identified, including at 32DU2, the Twin Buttes site (32DU32/32ME617), and 32ME254.

Sites from the Laurel complex (2100–850 B.P.) are generally found in the eastern portions of North Dakota, northern Minnesota, and southern Canada. Laurel pottery and mound building are fairly distinct, but lithics associated with this complex tend to be various and lack a particular style (Gregg 1985).

Avonlea complex (ca. 1800–1000 B.P.) sites occur across the northern Great Plains and are contemporaneous with Besant. This complex includes a variety of site types, including stone circles, bison kills, and rock shelter habitations (Reeves 1970). Avonlea represents the first regional complex to produce arrow points exclusively, suggesting a transition to bow and arrow technology (Frison 1988). Avonlea point types are small and indistinctly side-notched. Saskatchewan Basin Complex: Early Variant pottery is found at Avonlea sites (Byrne 1973). Avonlea subsistence in the north relied heavily on communal bison procurement, but in the southern range bison hunting was supplemented by smaller game (e.g., pronghorn), fish, and seasonal plant exploitation (Smith and Walker 1988). Avonlea sites are relatively rare in the Dakotas (Vickers 1994). In North Dakota, the Evans site (32MN301) contained Avonlea projectile points and ceramics (Schneider and Kinney 1978). Only one Avonlea-aged archaeological resource was identified in the GSU.

Rare in North Dakota is the Old Woman's complex (A.D. 700–1300). This complex is contemporary with the Plains Village tradition, so it would seem likely that many associated sites would be granted the latter designation (Gregg 1985).

The Blackduck complex (A.D. 1150–450) derives from northern Minnesota and was concentrated in southern Manitoba. It is contemporary with both Avonlea and Old Woman's complexes, and with Extended and Terminal Middle Missouri traditions. Some evidence of possible Blackduck pottery has been found along the Missouri River, which suggests trade between the Missouri River villagers and the Blackduck people to the north (Joyes 1970).

Plains Village Tradition (ca. 1050–350 B.P.)

Lehmer (1971) defines the Plains Village tradition as possessing the following diagnostic traits: equal horticulture and hunting and gathering strategies, semi-permanent villages near the Missouri River floodplain, earthlodges, large storage and refuse pits, distinctive ceramics, abundant end scrapers and arrow points, bison scapula hoes, and a well-developed bone tool industry. The Plains Village tradition is divided into the Middle Missouri tradition (A.D. 969–1500) and the Coalescent tradition (A.D. 1300–1650), discussed below. Only 15 Plains Village archaeological resources have been identified in the GSU (Gregg and Bleier 2008).

Three primary Middle Missouri variants are recognized: Initial Middle Missouri (A.D. 969–1297), Extended Middle Missouri (A.D. 1075–1443), and Terminal Middle Missouri (A.D. 1300–1500) (Eighmy and LaBelle 1996). These represent a continuation and intensification of Northern Plains Woodland lifeways and their appearance coincides with the onset of the Medieval Warm Period (Bryson et al. 1970) when a moisture increase likely permitted horticulture in areas previously characterized by tenuous farming conditions (Wood 2001).

The Initial Middle Missouri Variant (IMMV) is thought to have developed as an outgrowth of the Great Oasis (Tiffany 2007) or via the arrival of eastern populations already exploiting a Plains Village lifeway (Lehmer 1971). The IMMV was concentrated in the southern portions of the Middle Missouri region and characterized by highly fortified villages of large, semi-subterranean rectangular houses (Lehmer 1971; Winham and Calabrese 1998).

The Extended Middle Missouri Variant (EMMV) is concentrated in the northern portions of the Middle Missouri region (Lehmer 1971). EMMV groups resided in small villages of semi-subterranean rectangular houses; southern villages were more often fortified than those in the north (Wood 2001). It is unclear whether the EMMV replaced the IMMV or represents a contemporaneous offshoot of the IMMV. Origins aside, it is assumed that IMMV populations were eventually absorbed into EMMV populations. The final expression of this tradition was the Terminal Middle Missouri (Winham and Calabrese 1998:282). These sites were concentrated in a smaller geographic area along the Missouri River in southern North Dakota and characterized by fewer but much larger villages (Wood 2001). Sites again contained long, rectangular semi-subterranean houses but were highly fortified (Wood 2001). A continuation of the Middle Missouri tradition is recognized historically as the Siuoan-speaking Mandan and Hidatsa (Wood 2001).

The Coalescent period is temporally divided into Initial (650–350 B.P.), Extended (500–300 B.P.), and Post-Contact Coalescent (300 B.P.–Historic period) (Johnson 1998; Lehmer 1971). The Coalescent tradition is thought to represent a geographic movement of Central Plains tradition village-dwelling populations to the Missouri River Valley in South Dakota (Blakeslee 1993). Central Plains traditions might have migrated from Nebraska and Kansas in response to drought brought on by the Pacific climatic episode (Lehmer 1971). Similar to Middle Missouri tradition groups, Coalescent populations practiced an economy split between mixed cultigen horticulture and bison hunting (Johnson 1998).

Initial Coalescent Variant sites are located on bluffs overlooking the Missouri River and its drainages in southern South Dakota. Populations lived in fortified villages consisting of

subrectangular to circular/oval earthlodges and often surrounded by complex fortifications (Johnson 1998). Violence amongst Coalescent groups is evidenced at the Crow Creek site (39BF11) where approximately 486 individuals were killed in the village fortification ditch around 625 B.P. (Willey and Emerson 1993). Crow Creek is interpreted as evidence of internecine warfare amongst Initial Coalescent groups over land competition (Zimmerman and Bradley 1993) or, conversely, as evidence of warfare between immigrant Coalescent groups and resident Middle Missouri tradition peoples (Johnson 1998). The Extended Coalescent Variant apparently descended from the Initial Coalescent sometime in the fifteenth century A.D. Sites are concentrated along the Missouri River and its tributaries in central and northern South Dakota (Krause 2001). Extended Coalescent sites are far more abundant than during the Initial Coalescent and are characterized by a dispersed, unfortified village structure of circular earthlodges (Johnson 1998; Krause 2001; Lehmer 1971). The Extended Coalescent Variant evolved into the Post-Contact Coalescent during the Protohistoric and Historic and the Coalescent tradition is recognized as the Arikara (Krause 2001). The last post-contact village was Like-a-Fishhook Village, occupied by the Arikara, Mandan, and Hidatsa; it was abandoned in 1886 when groups relocated to the Fort Berthold Indian Reservation (Smith 1972).

HISTORIC CONTEXTS

European Trade and Exploration (A.D. 1738–1858)

Perhaps the earliest attempts at exploring the northern Great Plains came as a result of the ventures of Pierre Gaultier de Varennes Siure de la Verendrye (Dill 1983). His travels from New France into North Dakota led him as far as the Missouri River (somewhere near Bismarck), and led to subsequent expeditions by his sons, who travelled farther south into South Dakota (near Pierre) and west towards the Black Hills. While the elder la Verendrye met the Mandan, his sons encountered the Arikara and other tribes in South Dakota. Their reports heightened interest in the region and the possibilities that existed for trade with its inhabitants.

Following the la Verendryes, a modest fur trade developed in the region, but until the expedition of Captains Meriwether Lewis and William Clark returned successfully from their voyage up the Missouri, the region was considered a wild unknown (Schulenberg 1957).

In 1807, Manuel Lisa established a short-lived post at the mouth of the Bighorn, and by 1809 his St. Louis Missouri Fur Company was building posts among most of the tribes all along the Missouri River. Other notable companies, such as the Northwest Company, Hudson Bay Company, the Columbia Fur Company, and the American Fur Company, soon followed suit (Schulenberg 1957). The life of these posts tended to be short, but they did much to influence the tribes who frequented the Missouri River in both North and South Dakota. Fort Union—at the confluence of the Yellowstone and Missouri rivers—was the last of the great posts, and its waning during the late 1850s saw the fur trade in the Dakotas in its last throes.

Post-Contact Tribal Overview (A.D. 1780–1900)

In addition to the tribes that arose from the Middle Missouri and Coalescent traditions (Mandan, Hidatsa, and Arikara), the northern Great Plains and the Missouri River were also used by countless other tribes since before European contact.

The Assiniboine were known to frequent the northern Missouri River (mainly near the confluence with the Yellowstone), and were active in the fur trade throughout the eighteenth and nineteenth centuries. As well, the Cheyenne were pushed westward by the Chippewa during the middle of the eighteenth century and took up at least a temporary settlement period on the Missouri River. At least one earthlodge village has been attributed to the Cheyenne in eastern North Dakota, and some Cheyenne villages on the Missouri River were located between the Mandan to the north, and the Arikara to the south, where they built earthlodges and pursued horticulture and buffalo hunting (Schlesier 1968).

The Plains Cree and Plains Chippewa also frequented the northern Missouri—mainly near the confluence with the Yellowstone, but also near Fort Clark. Both tribes traded actively with the Mandan and Hidatsa. The Crow, although more westerly in their territory, were related to the Hidatsa and would often trade and visit with the Missouri River tribes (Schulenberg 1957).

Based on linguistic evidence, the Sioux (or Dakota) originated from the southwest Great Lakes region (DeMallie 2001a). The timing of the migration is unclear, but ceramic evidence suggests that the Dakota were living on the plains several centuries before the arrival of Europeans (Hanson 1998). Based on linguistics, it is thought that the Assiniboine split from the Sioux sometime before the mid-seventeenth century (Hanson 1998). The Teton Dakota are divided into seven sub-tribes, including the Oglala, Brule, Sans Arc, Hunkpapa, Blackfeet, Miniconjou, and Two Kettles (Hanson 1998). According to DeMallie (2001a), by the mid-eighteenth century, the Teton Dakota hunted bison in the area east of the Missouri River, their movements limited in part by the Arikara stronghold along the Missouri River. However, a series of smallpox epidemics from 1771 to 1781 devastated the Arikara villages (Johnson 1998) and permitted the Teton Dakota to move west of the Missouri River. Like the Teton Dakota, the Yankton and Yanktonai Dakota occupied the prairies east of the Missouri River and north into Minnesota in the mid-seventeenth century (DeMallie 2001a). By the mid-nineteenth century, the Yankton and Yanktonai occupied the prairies east of the Missouri River from the mouth of the Big Sioux River in the south to the Red River in the north (DeMallie 2001b).

The Reservation Period began in the 1860s and continues into today. This time period contains numerous accounts of government actions to stop tribal ceremonialism, forced boarding school education of Indian children, and attempts at termination and relocation to solve the "Indian Problem" in the Dakotas. Regardless of this checkered history, the tribes who lived on, and used, the Missouri River have persisted to the present as strong and vital people with a living culture that has survived for present and future generations.

In the GSU, five Hidatsa, one Arikara, one Chippewa, one Mandan, and 21 unspecified historic Native American archaeological resources have been identified (Gregg and Bleier 2008).

Homesteading in the Dakotas (A.D. 1860–1930)

The first homestead in North Dakota was filed in 1868, which was the only homestead filed until 1871. The true rush for homesteads did not take place until 1885. This rush was spurred by the extension of the Northern Pacific Railroad across the Red River from Minnesota (Works Progress Administration [WPA] 1950). Western North Dakota did not see much settlement prior to the 1890s, and the major settlement of this region did not start in any great numbers until between 1900 and 1910. In general, those homesteaders who selected lands along the Missouri River were able to do some crop farming, but the majority of homesteads were arranged as ranch operations for sheep or cattle.

In addition to the homesteading, which brought an increasing number of people to western North Dakota, the discovery of large deposits of lignite coal further boosted interest in the development of Williams County and the surrounding area (WPA 1950). Although slow at first, the mining industry started to flourish during the 1930s; to this day it remains a major focus of activity which drives the economy of both the county and the state. In total, eight historic Euro-American archaeological resources have been identified in the GSU (Gregg and Bleier 2008).

BACKGROUND RESEARCH

As part of the initial phase of this investigation, SWCA conducted a background search of archaeological and historical literature and records for the project area and surrounding 1-mile area on April 26, 2011. Researchers searched relevant record holdings at the State Historical Society of North Dakota (SHSND) and other available sources for information regarding previously recorded historic and prehistoric sites located within the project area.

Based on the results of the SHSND records search, 13 previous cultural resource inventories have been performed within 1 mile of the project area. These include eight cultural resource inventories pertaining to oil and gas exploration, two highway and road improvement inventories, and three inventories performed for an airport expansion, sewage system, and telecommunications projects. A bibliographic listing of previous archaeological and historic studies for project lands and the 1-mile study area in Williams County, North Dakota, is provided in Appendix A.

Seventeen previously recorded cultural resources have been identified within the project area and surrounding 1-mile study area (Table 2). Three of these resources are prehistoric in age and include two cultural material scatter site leads (32WIX196 and 32WIX197) and a single lithic isolated find (32WIX487); all are of unknown cultural affiliation. Additionally, six historic churches (32WI873, 32WI874, 32WI875, 32WI876, 32WI894, and 32WI895), four historic home site leads (32WIX406, 32WIX407, 32WIX408, and 32WIX409), one historic farmstead (32WI897), one historic pole barn (32WI319), one historic isolated find (32WIX543), and one public library site lead (32WIX6) have been documented. Regarding eligibility for listing on the National Register of Historic Places (NRHP), 13 resources remain unevaluated, while four are not eligible. None of the previously recorded resources are within the project area.

Table 2. Previously Recorded Resources.

Site Number	Site Name	Legal Location (S/T/R)	Site Type	Cultural Affiliation	NRHP Recommendation
32WI873	Zion Lutheran Church	SW¼ NW¼ NE¼ Section 27, T157N, R95W	Historic Church	Historic, 1915–Present	Unevaluated
32WI874	First Baptist Church	SW¼ NE¼ NE¼ Section 27, T157N, R95W	Historic Church	Historic, 1968–Present	Unevaluated
32WI875	First Lutheran Church	NW¼ NE¼ SW¼ Section 27, T157N, R95W	Historic Church	Historic, 1968–Present	Unevaluated
32WI876	Church of St. Thomas the Apostle	NE¼ SE¼ NE¼ Section 27, T157N, R95W	Historic Church	Historic, 1966–Present	Unevaluated
32WI894	Assembly of God	NW¼ SE¼ NE¼ Section 27, T157N, R95W	Historic Church	Historic, 1958–Present	Unevaluated
32WI895	Formerly Norseman Museum First Lutheran Church	NE¼ SW¼ NE¼ Section 27, T157N, R95W	Historic Church	Historic, 1927–Present	Unevaluated
32WI897	None	SW¼ SW¼ SE¼ Section 23, T157N, R95W	Farmstead	Historic, 1912–1994	Not Eligible
32WIX6	None	NE¼ Section 27, T157N, R95W	Site Lead – Public Library	Historic, 1953–Present	Unevaluated
32WIX196	None	NE¼ NE¼ NE¼ Section 34, T157N, R95W	Site Lead – Cultural Material Scatter	Unknown Prehistoric	Unevaluated
32WIX197	None	NE¼ Section 36, T157N, R95W	Site Lead – Cultural Material Scatter	Unknown Prehistoric	Unevaluated
32WI319	None	NE¼ NW¼ NE¼ Section 5, T157N, R95W	Pole Barn	Historic, 1962–Present	Not Eligible
32WIX406	None	NW¼ NE¼ Section 27, T157N, R95W	Site Lead – Home	Historic, 1910–Present	Unevaluated
32WIX407	None	SE¼ NW¼ NE¼ Section 27, T157N, R95W	Site Lead – Home	Historic, 1910–Present	Unevaluated
32WIX408	None	SW¼ NE¼ Section 27, T157N, R95W	Site Lead – Home	Historic, 1910–Present	Unevaluated
32WIX409	None	SE¼ SE¼ SE¼ Section 27, T157N, R95W	Site Lead – Home	Historic, 1930–Present	Unevaluated

Site Number	Site Name	Legal Location (S/T/R)	Site Type	Cultural Affiliation	NRHP Recommendation
32WIX487	None	NW¼ SE¼ NE¼ Section 28, T157N, R95W	Isolated Find – Knife River Flint Side Scraper	Unknown Prehistoric	Not Eligible
32WIX543	None	NE¼ SW¼ SE¼ Section 23, T157N, R95W	Isolated Find – Metal Piece	Unknown Historic	Not Eligible

NRHP = National Register of Historic Places
S/T/R = Section/Township/Range

FIELDWORK METHODS

Fieldwork was designed so that project archaeologists could collect all appropriate and necessary data for the completion of the project report of results and recommendations, and to ensure accurate completion of site forms for all resources encountered.

In accordance with the scope of work, archaeologists surveyed the 300- to 350-foot-wide TGP to TRT project corridor using parallel linear transects with spacing not exceeding 30 meters (m). The ground surface was examined for artifacts, features, or other evidence of cultural occupation. Cut banks, eroded surfaces, and other areas with significant exposure were examined intensively throughout fieldwork, especially where previously recorded cultural resources existed. In areas with high vegetation cover and high probability of cultural resources, survey transects were reduced to 10 m to maintain adequate visibility.

Where cultural resources were located, project archaeologists made an intensive effort to fully and accurately establish the extent and boundaries of new and previously recorded sites. As such, sites were mapped using sub-meter accurate Trimble global positioning system (GPS) units. When detailed mapping or remapping was required, all linear site features, such as site boundaries, roads, and fence lines, as well as point features, such as the site datum, cultural features, artifact concentrations, diagnostic artifacts and tools, and other necessary data, were mapped with the Trimble GPS unit for post-processing into ArcMap 10.0 shapefiles and plotting onto associated USGS 7.5-minute quadrangles to ensure accuracy and produce required location maps of all sites and resources.

In addition to site mapping, project personnel photographed sites in overview and for other data collection needs. Associated features and diagnostic artifacts were described, measured, recorded with GPS units, and photographed, as appropriate. Field personnel noted environmental setting, context, topography, and geographical location for each cultural resource. No collection or subsurface testing was conducted during the inventory.

SITE EVALUATION

SWCA evaluated sites and their significance, as defined by criteria set forth in Title 36 Code of Federal Regulations 60.4 (National Park Service [NPS] 1991), which state:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A) That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B) That are associated with the lives of persons significant in our past; or
>
> C) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D) That has yielded or may be likely to yield information important in prehistory or history.

Not eligible sites have lost integrity and are unlikely to contribute further data significant to knowledge of prehistory or history.

Prehistoric Archaeological Sites

Prehistoric lithic scatters/campsites (sites without any structures or association with known significant events or persons) recorded for the project generally will not contain NRHP discussion for Criteria A, B, or C. Instead, for NRHP recommendation purposes, these properties will be discussed for their potential to yield information significant to prehistory or the archaeological record under NRHP Criterion D. Special cases generally apply to Criterion A, where a prehistoric site type (such as a stone circle site) may not be recommended eligible for the NRHP from an archaeological perspective, but may be considered important to cultures of Native American peoples.

Evaluation of the significance of archaeological sites under Criterion D considers general characteristics such as the nature, size, and diversity of the site assemblage; the potential presence or absence of subsurface cultural deposits; the nature of any features within the site (construction techniques, building materials, structural integrity); and the age range reflected by the site assemblage. Sites considered to be significant generally contain an assemblage of cultural remains that reflects sufficient diversity to permit identification of activities and allow confirmation of the period of site use. Sites with the most potential to address research questions about human lifeways contain associated features, structures, and/or relatively intact and dateable artifacts.

Historic Archaeological Sites or Components

Historic sites containing or consisting of preserved features or structures are evaluated primarily under Criteria A, B, and C. Historic trash scatters lacking associated features or structures are primarily evaluated under Criterion D. In general, these types of sites represent ephemeral prospecting or stock management activities, but they lack identifiable or important association with specific persons or events of regional or national history (Criteria A and B), and they lack the formal and structural attributes necessary to qualify as eligible under Criterion C. The evaluation of significance of historic archaeological sites under Criterion D focuses on the capacity of the sites or components to yield significant information regarding knowledge of history during the period(s) of site significance. Evaluation of the significance of historic sites considers general characteristics such as the nature, size, and diversity of the site assemblage; the potential presence or absence of subsurface cultural deposits; the nature of any features within the site; construction techniques; building materials; structural integrity; and the age range reflected by the site assemblage.

Historic sites considered to be significant under Criterion D generally contain an assemblage of cultural remains that reflects sufficient diversity to permit identification of activities and allow confirmation of the period of site use. Sites with the most potential to address research questions contain associated features, structures, and relatively intact and datable artifacts. Significant sites are those that could impart information not available solely from historical

documents. Although archival research may provide an essential form of information, often historical records are inaccurate or incomplete. For example, examination of construction techniques or household assemblages can provide information on economic slumps, reuse of structures for other than original purposes, and re-occupation cycles. As a result, insight may be gained into questions about human lifeways that are often asked in archaeology, but rarely specified directly in historical documentation.

Non-Archaeological Historic Sites or Components

Non-archaeological historic sites or sites with non-archaeological components are those primarily assessed for NRHP eligibility under Criteria A, B, or C, rather than Criterion D and typically are not subject to subsurface testing. Individual segments of significant historic sites are evaluated as contributing or non-contributing in terms of physical and environmental integrity. Examples of historic site types include linear historic features, such as transportation routes and water conduits, standing building, and structure sites, and potentially extend to any historic feature on an otherwise archaeological site, such as Traditional Cultural Property (TCP) features. Historic and ethnographic sites evaluated for potential contribution to history or cultural traditions for reasons beyond their possible future research value tend to have different evaluation and management considerations than archaeological sites. Typically, the integrity of historic sites is addressed using the guidelines presented in National Register Bulletin 15 (NPS 1991), which defines the seven elements of integrity as location, design, materials, workmanship, setting, feeling, and association. As such, properties are basically evaluated in consideration of their physical integrity and the integrity of their surroundings. TCPs are also considered under the guidelines of National Register Bulletin 38 (Parker and King 1998).

INVENTORY RESULTS AND RECOMMENDATIONS

During the TGP to TRT gas pipeline inventory, SWCA archaeologists newly recorded a segment of the Burlington Northern Santa Fe Railroad (BNSF) (32WI1007). The segment is part of the Glasgow Subdivision and consists of the Minot-Williston main line, which is currently an active railroad crossing. The newly recorded segment is discussed in detail below. Copies of the North Dakota Site Form for 32WI1007 is provided in the detached Appendix B, and a resource location map is provided in Appendix C.

32WI1007 UPDATE

Site Type:	Railroad
Association:	Historic (1887–Present)
Site Size:	300 by 50 feet (15,000 feet^2)
NRHP Recommendation:	Eligible, Non-Contributing
Management Recommendation/Project Effect:	Avoid, Bore/No Effect

Site Description and Previous Recording

32WI1007 is the previously recorded Great Northern Railway main line and branch line corridors, which are currently active and operated by BNSF Railway. The resource includes all tracks and related rail features in Williams County, North Dakota. The first segment of the site was recorded in 2008 by Metcalf Archaeological Consultants, Inc. during the Williston to Tioga 230-kV transmission line inventory. That stretch of the railroad is a small part of the railroad segment known as the Glasgow Subdivision, and includes the Minot-Williston main line. It was noted that the main line was active and no NRHP eligibility recommendation was provided. This newly recorded segment of the railroad includes the rail bed, rails, and wooden ties (Figures 4 and 5) and is located in slightly rolling pasture and agricultural land with small wetlands, east of Tioga, North Dakota. The railroad is in good operating condition; however, the site integrity has been impacted by periodic upgrades and maintenance.

Figure 4. 32WI1007 site overview, facing west.

Contains Privileged Information -- Do Not Release

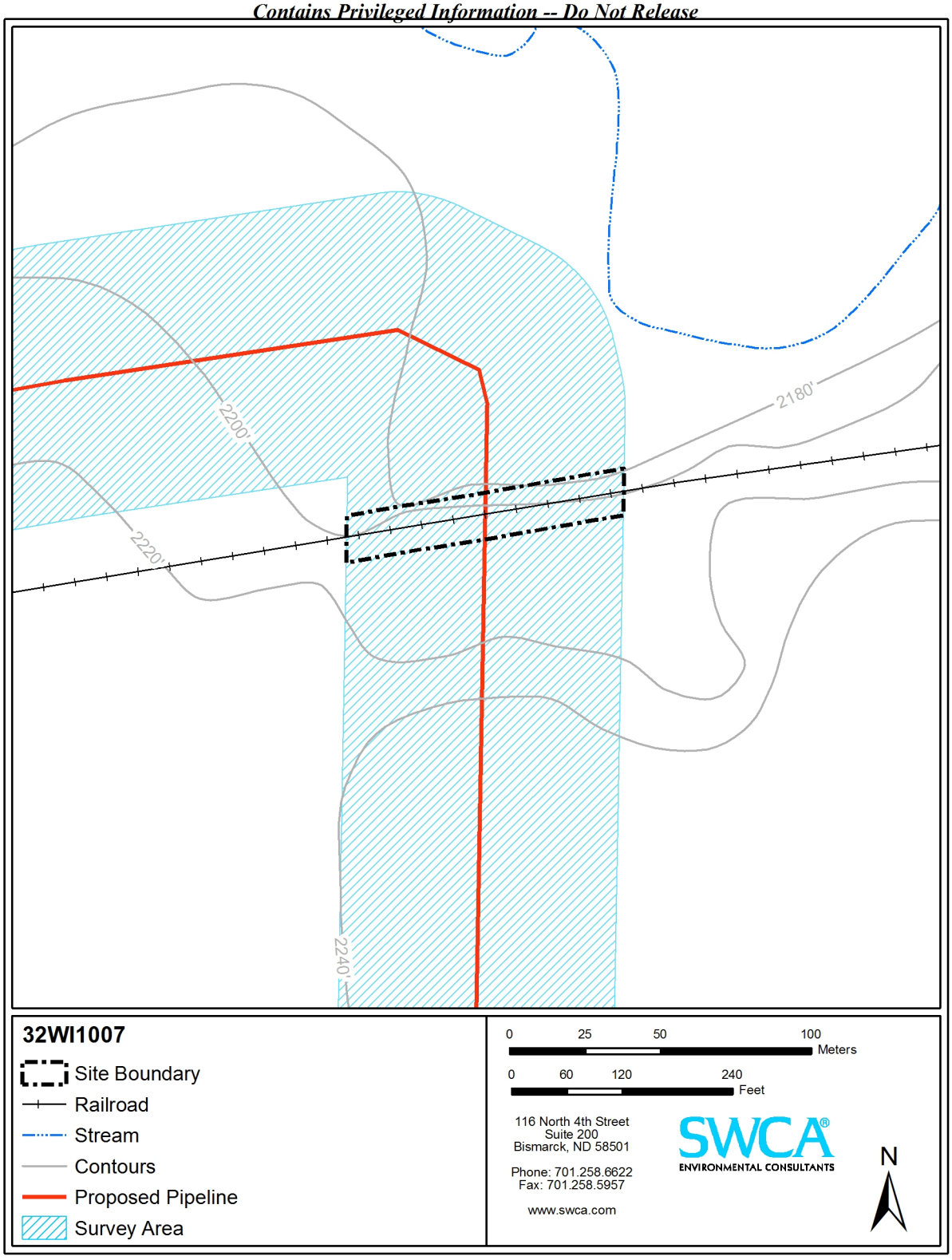

Figure 5. 32WI1007 site sketch map.

Survey Results

SWCA newly recorded this segment of 32WI1007 on May 18, 2011. The site consists of a section of railroad bed, rails, and wooden ties that are part of the BNSF Railroad. This segment of the line was originally constructed in 1887 by the Saint Paul, Minneapolis, and Manitoba Railway Company under the control of James J. Hill and his associates. The railroad was reorganized as the Great Northern Railway in 1889. In 1970, the Great Northern merged with the Northern Pacific Railway and the Chicago, Burlington & Quincy Railway to form the Burlington Northern Railway Company. In 1995, the Burlington Northern Railway merged with the Santa Fe Railway to form the BNSF (Schmidt and Vermeer n.d.). The railroad is currently operated by BNSF.

The site consists of a segment of the historic Great Northern Railway. The segment within the project survey corridor measures 300 feet long by 50 feet wide by 27 inches high. The railroad is in good operating condition; however, the integrity of the site has been compromised by periodic upgrades, maintenance, and train traffic, thereby impacting both its physical and historic integrity.

NRHP Eligibility Recommendation

32WI007 is a previously recorded railroad alignment including the Williams County portions of the Great Northern Railway main line and branch line corridors. In 2008, the site was left unevaluated regarding its NRHP eligibility status. Great Northern Railway operations in Williams County played an important role in opening up settlement of remote parts of Williams County and the surrounding area, including the nearby town of Tioga, North Dakota. Additionally, the Great Northern Railway opened up commerce between cities in the Midwest and developing cities in the West. Therefore, SWCA recommends 32WI1007 eligible for nomination to the NRHP under Criterion A. Based on the recommendations in the *Railroads in North Dakota, 1972-1956*, railroad corridors are not eligible for the NRHP under Criterion B, as railroads are built by large corporations and do not represent individuals (Schmidt and Vermeer n.d.). Furthermore, it is unlikely that further analysis of the corridor will yield important information regarding the development or evolution of the railroad; therefore, SWCA recommends 32WI1007 not eligible for nomination to the NRHP under Criterion D.

During the current survey a small portion of 32WI1007 within the survey corridor was recorded. In this location, the railroad does not exhibit the original construction or design due to upgrades and repairs to the track; therefore, this segment is recommended as a non-contributing portion of 32WI1007, under Criterion C.

Management Recommendation

The segment of 32WI1007 recorded for the current project is recommended as a non-contributing portion of an eligible site; therefore, no further work is recommended. However, because the railroad is in active use, Hess plans to avoid the site by boring under the railroad.

CONCLUSION

SWCA conducted a Class I and a Class III cultural resource inventory on May 18, July 1, and September 8, 2011, for the proposed TGP to TRT gas pipeline. Hess proposes to construct the TGP to TRT gas pipeline on privately owned lands east, south, and southwest of Tioga, North Dakota.

The NDPSC is the jurisdictional agency presiding over the construction of the project. In compliance with NDPSC requirements, Hess requested SWCA to perform a cultural resource inventory to assess the potential effect of activities associated with the construction of the TGP to TRT gas pipeline on any cultural resources that may be present within the proposed project area. The proposed alignment extends for 3.62 miles and portions of it fall within areas previously inventoried by SWCA for the TRT project (Lechert and Smith 2010) and TGP Southern expansion (Lechert 2011). The current inventory includes 134.80 acres of centerline survey, and 37.03 acres of additional reroute survey. The survey corridor ranges from 300 to 350 feet wide to accommodate pipeline centerline shifts. In total, 171.83 acres were inventoried for the project. The proposed pipeline is contained entirely within the land inventoried by SWCA in 2010 and 2011.

During the inventory, SWCA newly recorded a segment of the historic Great Northern Railway main line, currently owned and operated by BNSF (32WI1007). Specifically, this segment is part of the Glasgow Subdivision of the Minot-Williston main line and is currently an active railroad crossing. SWCA recommends 32WI1007 eligible for nomination to the NRHP under Criterion A; however, the newly recorded segment of 32WI1007 is recommended as a non-contributing portion of the larger resource due to the impacts to its physical and historic integrity. Hess plans to avoid 32WI1007 by boring underneath the site. SWCA recommends that a determination of *No Historic Properties Affected* and *No Significant Sites Affected* be granted for the project to proceed as planned.

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APPENDIX A
List of Previous Studies

Bibliographic Listing of Previous Archaeological and Historic Studies for Project Lands in Williams County, North Dakota.

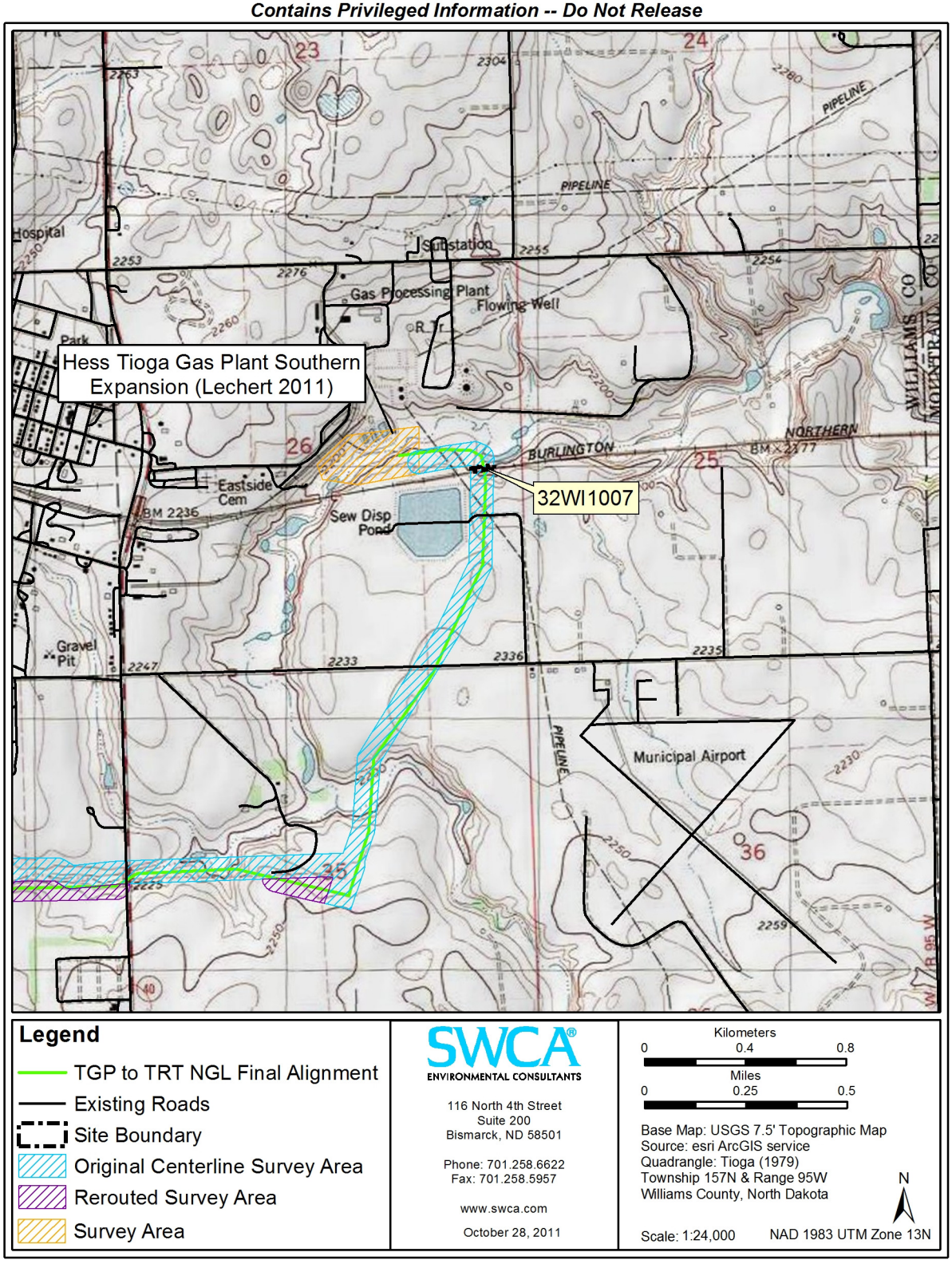
Manuscript Number	Location	Title	Authors	Year
001541	Section 36, T157N, R95W	Tioga Airport Expansion Williams County, North Dakota: Class III Inventory for All Cultural Resources	M. Gregg	1980
005730	Section 26, T157N, R95W	A Class III Intensive Inventory of the Proposed Tioga Sewage Lagoon in Williams County, North Dakota (Prepared under Federal Sewage Works Grant Project No. C38052-01) UW#267	C. Sheldon	1981
005749	Section 26, T157N, R95W; Section 5, T156N, R95W	Amerada Hess Corporation, 10 Inch Natural Gas Pipeline Project Cultural Resources Inventory, McKenzie and Williams Counties, North Dakota and Final Report	B. Olson	1992
007144	Section 24, T157N, R95W	Dakota Gasification Company CO2 Pipeline Selected Segments in Mercer, Dunn, McKenzie, Williams and Divide Counties, ND: A Class III Cultural Resources Inventory and Appendix B: USGS Topographic Coverage of the Pipeline	B. Olson	1998
008271	Section 4, T156N, R95W; Section 35, T157N, R95W; Sections 21, 22, 23, 24, 26, 27, 29, T157N, R95W	Four NCC Exchanges: A Class II & Class III Cultural Resources Inventory, Burke, Divide, Williams and Mountrail Counties, ND	W. Bleumle	2002
009485	Sections 22, 23, 25, 26, 27, T157N, R95W; Sections 5, 6, T156N, R95W	Improvements Along State Highway 40: A Class III Cultural Resource Inventory, Williams Co., ND	J. Morrison	2005
010476	Section 27, T157N, R95W	Cultural Resources Inventory for Northwest Communication Cooperative's Tioga Self Supporting Communication Tower TCNS ID 38309 Williams Co., ND T157N, R95W, Sec 27	B. Dorrance	2008

Manuscript Number	Location	Title	Authors	Year
010604	Section 21, T157N, R95W	Class III: Intensive Cultural Resources Inventory ND01 Tioga Alt 1 68th Street Northwest, Tioga, Williams Co., ND	E. Eigenberger	2008
011423	Section 26, T157N, R95W	A Class I and Class III Cultural Resource Inventory of the Tesoro Pipeline Facility Construction Project, Williams Co., ND	S. Lechert	2010
011424	Section 26, T157N, R95W	A Class I and Class III Cultural Resource Inventory of the Hess Corporation Tioga Gas Plant Expansion Project, Williams Co., ND	S. Lechert	2010
011687	Section 28, T157N, R95W	A Class I and Class III Cultural Resource Inventory of the Hess Tioga Rail Terminal, Williams Co., ND	S. Lechert and N. Smith	2010
012364	Section 26, T157N, R95W	A Class I and Class III Cultural Resource Inventory of the Hess Tioga Gas Plant Southern Expansion, Williams County, North Dakota	S. Lechert	2011
Report in Preparation	Section 35, T157N, R95W	A Class I and Class III Cultural Resource Inventory of the Hess TOP NGL/P20 Pipeline System, Williams and Mountrail Counties, North Dakota	D. Reinhart and C. Herson	Report in Preparation

APPENDIX B
(Detached)
North Dakota Site Form

APPENDIX C
Resource Location Map

Contains Privileged Information -- Do Not Release



Resource location map at 1:24,000 scale.